

**ITS 102.1: Fractal Design: A Technology for Fashion, Art and Culture**

Meeting Pattern: TU 12:50pm-1:45pm

Location: Gray College A04 (ITS College Activity Center)

Fractal geometry has become an exciting frontier bordering between mathematics and information technology and has impacts in many aspects of society such as fashion design, art and culture. Fractals are characterized by the repetition of similar patterns at ever-diminishing scales. In this course, an overview of various fractal geometries such as scaling fractals, non-scaling fractals, self-mapping fractals along with the various properties of fractals will be presented. The applications of fractal geometry in fashion design, movie industry, and artistic expression will be explored. The evidence of fractal design in various cultures such as African, Celtic, Chinese, Ukrainian, and Maori will be covered. A project in which students design simple fractal geometry in various applications is required.

**Wendy Tang, Electrical and Computer Engineering**

Wendy Tang is an Associate Professor at the Department of Electrical and Computer Engineering in Stony Brook University. She received her B.S., M.S. and Ph. D in Electrical Engineering from the University of Rochester. Her current research interests are in Wireless Sensor Networks, Communication Networks

and Graph Theory Applications. Her research effort is supported by the National Science Foundation. She and her colleagues are the recipients of two best paper awards in 1997 and 1998. She is also an accomplished educator who has dedicated considerable efforts in promoting entrepreneurship in engineering education and increasing women students in engineering. Her dedication in promoting women in engineering was recognized by an IEEE Region 1 Award in 1998, an IEEE Regional Activity Board Achievement Award also in 1998 and an IEEE Third Millennium Medal Award in 2000. In 2006, the IEEE Long Island Section awarded Dr. Tang and her colleague, Dr. Serge Luryi, the Athanasios Papoulis Education Award for their pioneering contributions in incorporating entrepreneurship in engineering education. She is currently the Project Director for the National Science Foundation funded Project EXCE2L (Excellence in Computer Education with Entrepreneurship and Leadership skills) with a goal of enriching engineering curricula in general and computer engineering curriculum in particular through the incorporation of entrepreneurial and leadership skills.

As the new Faculty Director for the Information and Technology Studies (ITS) College, her goal is to continue the vision of the College to emphasize how information and technology impact our daily lives in different aspects such as personal development, arts, sciences, communications, global impacts and culture.

**ITS 102.2: Nanotechnology: Fact and Fiction**

Meeting Pattern: TH 2:20pm-3:15pm

Location: Gray College A04 (ITS College Activity Center)

Nanotechnology is the research, design and manufacture of functional materials or devices which rely on the unique properties materials have at a size scale of a few billionths to a few tenths of a millionth of a meter. Nanotechnology has not only begun to open new doors for engineering solutions, but has also been a major plot device for science fiction over the last thirty or so years. We will examine nanotechnology from the point of view of science fiction, and contrast that with the science, technology, risks and promise of nanotech research today.

**Gary Halada, Materials Science and Engineering**

Gary Halada is an associate professor in the Department of Materials Science and Engineering. He is the Undergraduate program Director for the Engineering Science (ESG) degree program, as well as coordinator of the Minors in

Nanotechnology Studies (NTS) and Environmental Engineering (ENE). A graduate of Stony Brook University, Dr. Halada is a past faculty director for the Undergraduate College of Information and Technology Studies (ITS). His research focuses on designing bio-inspired materials for environmental remediation and nanoscale engineering.

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### ITS 102.3: Artificial Life: Fact and Fiction

Meeting Pattern: TH 3:50pm-4:45pm

Location: Gray College A04 (ITS College Activity Center)

Emerging technologies in genetics, robotics, artificial intelligence and nanotechnology (the GRAIN technologies), as well as bioengineering and bio-inspired engineering, are often looked to as a pathway to the development of "artificial life". Whether this is a realistic outlook or pure imagination (or somewhere in between), science fiction writers have been at the forefront of speculation on both the promises and risks of such a technology. From "Frankenstein" to modern tales of cloning and autonomous robots, we will look at how popular media has considered both the benefits and potential hazards of artificial life, and discuss how this compares to current technology and what this can teach us about ethics in science and engineering.



#### **Gary Halada, *Materials Science and Engineering***

Gary Halada is an associate professor in the Department of Materials Science and Engineering. He is the Undergraduate program Director for the Engineering Science (ESG) degree program, as well as coordinator of the Minors in

Nanotechnology Studies (NTS) and Environmental Engineering (ENE). A graduate of Stony Brook University, Dr. Halada is a past faculty director for the Undergraduate College of Information and Technology Studies (ITS). His research focuses on designing bio-inspired materials for environmental remediation and nanoscale engineering.

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### ITS 102.4: Energy and Technology

Meeting Pattern: F 10:40am-11:35am

Location: Gray College A04 (ITS College Activity Center)

In this ITS102 course, students will have an opportunity to conduct research and perform analysis in the topics of energy and technology. This will be a guided study in which you will interact with the professor directly to choose the topic, conduct study and literature survey, and put together a professional presentation on the topic of your choice. Issues and case studies include topics in "Energy and Technology" pertaining to: environment, daily life, transportation, power plant, energy production, energy consumption, reserve on earth, drinking water, biosystem, biodiversity, ... etc. Students are expected to produce a video podcast presentation, as the term project, to document and present their work and findings on a chosen topic.



#### **Imin Kao, *Mechanical Engineering***

Dr. Imin Kao is a professor of Mechanical Engineering and Associate Dean of College of Engineering and Applied Sciences. His research interests include robotics, manufacturing, intelligent diagnosis, and sensing technology.

**ITS 102.5: Garbage in Your World**

Meeting Pattern: W 2:20pm-3:15pm

Location: Gray College A04 (ITS College Activity Center)

We will look at the kind of garbage we make, in particular here on campus. Many people draw conclusions about the very nature of our society from our garbage, and we will look at some of those points of view. The class will explore some ways we currently manage our wastes, and examine some alternatives that may lead to entirely different approaches to materials use. The potential for such changes to lead to a more "sustainable" way of life will be discussed.

**David Tonjes, *Technology and Society***

Dr. Tonjes conducts research on environmental management. His primary areas of research are solid waste processes and management, and estuarine and coastal management. Solid waste research topics have included waste generation and management methodologies, including assessments of local programs and helping local governments plan and implement effective strategies. Landfill impacts on the environment are another topic of interest, including assessments of leachate quality and treatment methodologies, and tracing impacts to groundwater and surface water systems following releases of leachate to the environment, including creating and maintaining groundwater models of the affected systems.

**ITS 102.6: Complex systems, emergence of behavior and prediction**

Meeting Pattern: TU 2:20PM-3:15pm

Location: Gray College A04 (ITS College Activity Center)

Complex systems are composed of a large number of components and are characterized by an even larger number of interactions among the components. A common feature of complex systems is that they are not amenable to exact descriptions. Examples of complex systems include the climate, patterns in nature (meandering rivers, mountain ranges, ridges on the surface of sand dunes), formation of animal aggregations (fish schools, ant colonies), nervous systems, biological systems (cells with their signaling pathways), economies (interdependence among financial markets), and engineering systems (telecommunication infrastructures, power grids). Complex systems constantly evolve in time, often seemingly in an unpredictable way. In this course various important issues of complex systems are addressed including ways of understanding how structures and behavior emerge from the individual components of the systems and how the systems unfold with time.

**Petar Djuric, *Electrical and Computer Engineering***

Petar M. Djuric; received his B.S., M.S., and Ph.D. degrees in electrical engineering. Since 1990 he has been with Stony Brook University, where he is Professor in the Department of Electrical and Computer Engineering. He works in the area of statistical signal analysis and processing.

### **ITS 102.7: Technology Intellectual Property: How to protect your technology ideas and avoid stealing others? an Introduction to Intellectual Property Law**

Meeting Pattern: M 5:20pm-6:15pm

Location: Gray College A04 (ITS College Activity Center)

Intellectual Property Law is the body of law devoted to protecting intangible assets. Defining laws to protect your house or your car is easy. How do you protect your new design? Your company name? Your software code? We will discuss the various types of intellectual property law and how they can be used to protect your valuable research and development. The prime focus will be on patent law as it protects "inventions". The course will survey the major cases and issues in patent law including protecting your intellectual property and learning how to avoid infringing the intellectual property of others. Half of the semester will be in a lecture format where cases will be presented by the instructor and the other half will be presentations by students.

#### **Steven Rubin, *Dilworth & Barrese, LLP***

Steven Rubin has over 10 years experience in counseling clients on patent related matters. He advises clients throughout all phases of a patent's life from conception by an inventor to enforcement. He drafts and prosecutes patent applications and has managed large patent portfolios, identified potential patent infringement assertions and potential cross-licensing opportunities and provides infringement opinions as needed. He represents clients in patent enforcement and litigation matters domestically and internationally. Mr. Rubin also reviews patent portfolios and pending patent litigations in relation to corporate mergers, acquisitions and investments.

Mr. Rubin is the Chairman of the IEEE (Institute of Electrical and Electronics Engineers) Long Island Section Power & Energy and Industrial Applications Joint Societies Chapter, and the Legal Affairs Section Officer for the Long Island Chapter. He has also taught patent law to students and faculty at Brooklyn Law School, Fordham Law School, Stony Brook University, and Farmingdale State College.

Mr. Rubin is a prolific author and lecturer on patent law. Mr. Rubin is frequently called upon by the media to comment on recent events in patent law. Recently, he has been quoted by IP Law & Business, Forbes, Information Week, macnewsworld.com, ecommercetimes.com, TechNewsWorld, Linuxinsider, EE Times, IPLaw360.com and Information Display magazine.

Mr. Rubin is a member of Eta Kappa Nu (the electrical and computer engineering honor society), a senior member of IEEE and a corresponding member of IEEE-USA Intellectual Property Law Committee.

### **ITS 102.8: Nanomedicine**

Meeting Pattern: TU 3:50pm-4:45pm

Location: Gray College A04 (ITS College Activity Center)

Recent advances in the field of nanotechnology have made major medical breakthroughs. They have been possible because scientists with vastly divergent areas of expertise have worked together in a cooperative and integrative manner. The challenge new scien



#### **Mary Frame McMahon, *Biomedical Engineering***

Research Interests : " Our emerging understanding of oxygen delivery to the tissues is that the blood flow within the smallest arterioles is tightly organized within repeating networks across the tissue. Central to this new paradigm are the concepts of va

**ITS 102.9: Visualize This!**

Meeting Pattern: W 3:50pm-4:45pm

Location: Irving/O'Neill 170

Over 50% of the brain is dedicated to the processing of visual information, including the abstract visual representation of non-visual concepts. Visualization is the gateway to deeper and more complex structures in the brain, such as those dedicated to reasoning and creative problem solving, which are still hard to replicate on machines. This seminar will give an overview of the effective use of visualization in fields as diverse as medicine, science, engineering, biology, and business. It will also investigate, in simple terms and highly visual, some of the specific graphics algorithmic techniques and concepts in use, and it will discuss what's behind today's popular graphics boards and how they can be used in more "serious" applications. Finally, it will explore issues in human visual perception, computer vision, and the physics of image generation.

**Klaus Mueller, Computer Science**

Klaus Mueller received the MS degree in biomedical engineering in 1991 and the PhD degree in computer science in 1998, both from The Ohio State University. He is currently an associate professor in the Computer Science Department at Stony

Brook University, where he also holds co-appointments in the Biomedical Engineering and Radiology Departments. His current research interests are computer and volume graphics, visualization, visual analytics, medical imaging and computer vision. He won the US National Science Foundation CAREER award in 2001 and has served as a co-chair at various conferences, such as IEEE Visualization, Volume Graphics Symposium, and the Fully 3D Workshop on High-Performance Image Reconstruction. He has authored and co-authored more than 100 journal and conference papers, and he has participated in 15 tutorials at international conferences on various topics in visualization and medical imaging. He is a senior member of the IEEE and the IEEE Computer Society. For more information, see <http://www.cs.sunysb.edu/~mueller>

**ITS 102.10: Opportunities in Science and Engineering**

Meeting Pattern: M 11:45AM-12:40PM

Location: Irving/O'Neill 170

A survey of the various science and engineering disciplines. Guest speakers describe their respective fields of research and study and the opportunities for students entering the field today. Other topics include ethics, intellectual property and entrepreneurship. The interdisciplinary nature of science and technology is emphasized.

**Monica Bugallo, Electrical and Computer Engineering**

Monica Bugallo is an Assistant Professor at the Department of Electrical and Computer Engineering. Her research interests lie in the area of statistical signal processing and its applications to different disciplines including communications and biology.

**ITS 102.11: Software User Interfaces - Getting the Design Right and the Right Design**

Meeting Pattern: TH 9:50am-10:45am  
Location: Computer Science 1306

This course will offer an introduction to the design of software user interfaces. Topics include: how to design high-quality user interfaces for desktop, web, and mobile/handheld software applications; common mistakes that we make when designing user interfaces; what is human computer interaction (HCI) and why it is important; serious game interfaces; virtual reality and augmented reality; and natural language interfaces. During the semester we will also tour the labs in the Center of Excellence in Wireless and Information Technology (CEWIT) and see demos of different software systems developed at CEWIT.



**Rong Zhao, Computer Science**

Dr. Rong Zhao is the Director of Software Systems Division of the New York State Center of Excellence in Wireless and Information Technology (CEWIT) and a faculty member of Computer Science Department at Stony Brook University. He has more than

15 years of software research and development experience and more than 8 years of project management and technology commercialization experience. His areas of expertise include data mining, machine learning, user interfaces, software engineering, medical informatics and healthcare technology. Dr. Zhao has provided consulting and training services to several Fortune 500 companies and served as an advisor, consultant or expert witness for companies in many industries.

**ITS 102.12: Social, Legal, and Ethical Issues for Information Technology**

Meeting Pattern: TU 9:50am-10:45am  
Location: Computer Science 1310

This course deals with the impact of computers on us as individuals and on our society. Rapid changes in computing technology and in our use of that technology has changed the way we work, play and interact with other people. These changes have created a flood of new social and legal issues that demand critical examination. For example, technologies such as Gmail, FaceBook, MySpace, along with music sharing sites and Wikis create new social, ethical, and legal issues.

Here are a few examples of the issues we will be talking about:

\* There is a great deal of information about all of us recorded in computer databases. What rules should govern how this information is used? (We all get privacy notices in fine print from our banks, credit card companies, etc. -- what do they really mean?) Hacking, identity theft and credit card fraud has increased in recent years. What are responses to these types of fraud and what precautions can we take to prevent this from happening?

\* New encryption methods make it possible to keep e-mail and phone conversations secret from others. How should our desire for privacy be balanced with the need of law-enforcement agencies to intercept communications of suspected criminals or terrorists?

\* How serious are the problems created by Web sites that contain pornography, 'hate' material directed at various groups, bomb-making information, etc? Should there be any restrictions on material that is put on the Web?

\* It is easy to use computers to copy music, software, books, etc., in violation of copyright law. What is the extent of this problem? What can or should be done about it? What is free software? Should all software be free?

There are (at least) two sides to almost all of the questions we will consider in this course. We will spend much of our class time discussing the issues and exploring different points of view.



**Robert Kelly, Computer Science**

As Associate Chair of Computer Science, he has primary responsibility for the undergraduate Computer Science and Information Systems programs at Stony Brook University. He has taught classes in Software Engineering, Internet Programming, User Interface Programming, Introduction to Programming, Electronic Commerce, Introduction to

Information Systems and Legal Issues in Computer Science, many of which he has also developed. His research interests include medical informatics, software engineering, image processing, Internet programming, and parallel programming. The primary research focus has been on systems to reduce the incidents of medical errors in acute health care facilities. This work includes a system for a high-level interface to medical monitors, representation techniques for clinical guidelines as system-independent documents, an Anesthesiology clinical support system, a rule-based system for discharge planning, and a system to associate monitor data with outcome data

to improve prediction of changes to a patient's condition in critical care settings. He is also developing systems to process marine science sensor data with the goal of developing inquiry systems for marine features. He has published papers on these topics in major journals and conferences. He has been on program committees or chaired invited sessions of a number of

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international conferences. He is also the graduate director of the college level program in Information Systems Engineering. Collaborating with an industry partner, he has developed a software application that received the Long Island Software Award for Internet-based software. He is also the recipient of the State University of New York Promising Inventor Award. Prior to joining Stony Brook University in 1999, he was Vice President of Global Professional Services at Computer Associates, and prior to that, he was Director of Research & Development at Northrop Grumman Data Systems. He also serves as Vice Chair of the Board of Directors for the Bethpage Federal Credit Union, a \$3.5B financial institution.  
(631) 632-7543, Robert.Kelly@stonybrook.edu,  
www.cs.sunysb.edu/~robkelly/

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### ITS 102.13: Societal Impact of Nanotechnology

Meeting Pattern: TU 9:50am-10:45am

Location: Gray College A04 (ITS College Activity Center)

This course will focus on the applications and societal implications of nanotechnology. After a brief introduction to research in nanotechnology (applied science and technology at the molecular level), attention will turn to the myriad of potential applications of nanotechnology. Special consideration will be given to scientific, social, political, economic, behavioral, legal and ethical aspects of the development and applications of nanotechnology.



#### David Ferguson, *Technology and Society*

David Ferguson is a Distinguished Service Professor of Technology and Society and Applied Mathematics and Statistics at Stony Brook University. Currently, he is chair of the Department of Technology and Society. His research and teaching are intertwined and focus on issues of quantitative reasoning;

problem solving; use and assessment of educational technologies; technology in mathematics, science and engineering education; and decision making. Dr. Ferguson has held many funded research and special projects. He co-directed the NSF-supported Algorithm Discovery Development project and two NSF-funded Faculty Enhancement workshops on the teaching of introductory computer science courses. Under support from the Sloan Foundation, he developed a course in Applications of Mathematics for liberal arts students. He also co-designed and co-taught a multidisciplinary course, jointly offered by Biological Sciences and the College of Engineering and Applied Sciences, on Computer Modeling of Biological Systems. He was a co-PI on a multi-campus project, funded by NSF, on Mathematical Sciences and Their Applications Throughout the Curriculum. Currently, he is co-PI on two NSF-funded educational technology projects: 1) MathThread project to study the learning and teaching of mathematics via distance learning, and 2) Project on Innovative Approaches to Computer-Human Interfaces. In addition, he has developed a variety of curricular materials to help undergraduates improve their quantitative reasoning. At the graduate level, Professor Ferguson teaches courses in educational technology and decision making. He supervises

projects in such areas as advanced technologies in the learning and teaching of mathematics, science and engineering; problem solving in a variety of content areas; computer-human interfaces; quantitative models in decision making; and teacher and faculty development. In 1992, Professor Ferguson received the State University of New York Chancellor's Award for Excellence in Teaching. He is a New York State and national leader in programs to enhance the participation of underrepresented minority students in undergraduate and graduate science, mathematics, engineering, and technology programs. Dr. Ferguson was a member of the executive committee of the NSF-supported Recognition Award for the Integration of Research and Education (RAIRE). From 1998 until 2002, Dr. Ferguson directed Stony Brook's Center for Excellence in Learning and Teaching (CELT). He enjoys the very diverse learning environment where educators, engineers, environmental professionals, and current, as well as emerging managers, learn collaboratively.

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### ITS 102.14: Computer Security: Attacks and Defenses

Meeting Pattern: F 10:40am-11:35am

Location: Library S1410D

Computer security is an increasingly important and difficult issue in our society. Why is it so hard to make a secure computer system? This course will explore some of the challenges, by looking at various kinds of attacks and how they can be prevented or mitigated. In the process, we will also learn about the design of modern computer hardware and software.



#### Scott Stoller, *Computer Science*

Professor Stoller's primary research interests are analysis, optimization, testing, and verification of software, with emphases on concurrency and security.

**ITS 102.15: Engineering and Technology Ethics**

Meeting Pattern: TU 12:50pm-1:45pm

Location: Library N3090

In order to function in a society driven by technology and innovation, understanding the basics of the legal system on which it is based is as important for the lay person, as for the scientist or engineer.

In this course we introduce the concept of critical and independent thinking about moral issues and how to apply this moral thinking to situations that arise in the course of professional business practices. We will define the laws pertaining to it, the business drivers behind it, and the ethical responsibilities associated with it.

Ethical conduct in the workplace is discussed.

Subjective terms and relations to societal norms are discussed and legal definitions and terminology is introduced. Analysis of complex problems and resolving these problems in the most ethical manner. Ethical cases involve issues of public safety, bribery, fraud, environmental protection, fairness, honesty in research and testing, and conflicts of interest.

**Donna Tumminello**, *Office of Technology Licensing and Industry Relations*

Assistant Director, Office of Technology Licensing and Industrial Relations at Stony Brook University

Responsible for coordinating intellectual property management and technology transfer activities for the College of Engineering and Applied Sciences. Expertise in analyzing inventions, promoting partnerships with corporations and business, and developing and executing strategic licensing contracts

**ITS 102.16: From Microelectronics to Nanoelectronics**

Meeting Pattern: W 10:40am-11:35am

Location: Gray College A04 (ITS College Activity Center)

Since the early days of microelectronics, there was a drive to build more complex and faster circuits and systems in a chip. According to the well known Moore's Law, circuit complexity (roughly the number of transistors) and computer performance doubles every 24 months. This has been achieved mainly by scaling down the dimensions of the building blocks (MOS transistors) from several microns to less than 0.1 micron or 100 nm (nanometer) at present. At this scale, new physical effects start to manifest themselves and change the behavior of conventional devices. In addition, completely novel nanoscale devices are being proposed that could hasten the transition from microelectronics to nanoelectronics. This course will give a general overview of microelectronics and introduce a number of novel nanoscale devices being pursued.



**Ridha Kamoua**, *Electrical and Computer Engineering*

Ridha Kamoua (S'88–M'90) received the B.S. degree in electrical engineering from the University of Rochester, Rochester, NY, in 1985, and the M.S. and Ph.D. degrees in electrical engineering from the University of Michigan at Ann Arbor, in 1987 and 1992, respectively. In 1992,

he joined the Department of Electrical and Computer Engineering, State University of New York at Stony Brook, where he is currently an Associate Professor and the undergraduate program director. His research interests include development of computer models for high-frequency millimeter- and submillimeter-wave devices, design and modeling of high-performance Gunn oscillators, investigation of novel semiconductor sources for the terahertz region, wide bandgap semiconductors, and neural recording sensors and circuits. Dr. Kamoua is a member of Eta Kappa Nu.

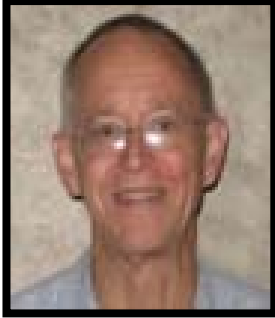
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### ITS 102.17: Mathematical Puzzles

Meeting Pattern: M 10:40am-11:35am

Location: Location TBA

In this seminar, students will play with a number of mathematical puzzles and learn some pieces of elementary mathematics that provide insight into solving the puzzles.



**Alan Tucker**, *Applied Mathematics and Statistics*  
Prof. Tucker is Applied Mathematics and Statistics Director of Undergraduate Program and is a Distinguished Teaching Professor. His specialty is combinatorial mathematics, an area in which he has written the best selling textbook.

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### ITS 102.18: Imagination in Engineering

Meeting Pattern: TU 11:20am-12:15pm

Location: Gray College A04 (ITS College Activity Center)

Everyday we hear about the litany world's problems: global warming, energy, poverty, clean water, health care etc. While powerful, monetary solutions can only solve some of these problems. For most, no solution is evident. For these the power of creative engineering is the only hope. Everyone has a unique prospective, ability, and motivation to seek solutions through constructive, creative enterprise. In this course we will seek to strengthen our creative ability through discussion and practical applications. As a solar photovoltaic energy and structural biology researcher the discussion will begin from this prospective and evolve according to the interests of the class.



**Charles Fortmann**, *Materials Science and Engineering*  
Main Research Topics: Computer modeling and simulation of protein shape change, secondary structure and neural systems

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### ITS 102.19: Having Fun With Polymers

Meeting Pattern: Time TBA

Location: Location TBA

Polymers are rapidly replacing natural materials. For example, we used to have drinks in glass bottles, cars were made of metal, and furniture from wood. Today, all these objects are created from man made plastics. Learn how plastics are made, what are the benefits and the risks...and get your hands wet, making your own.



**Miriam Rafailovich, *Materials Science and Engineering***

Miriam Rafailovich directs a center sponsored by the National Science Foundation which is dedicated to polymer research. The center is a pilot study on research through education, which means that students of all ages--from high school through the post-

doctorate can work together in teams, solving problems related to polymers.

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### ITS 102.20: Engineering Success Through Failure

Meeting Pattern: TH 12:50pm-1:45pm

Location: Gray College A04 (ITS College Activity Center)

Engineering failures play an important role in the evolution of design. We will consider some famous (and a few not-so-famous) engineering failures such as the Tacoma Narrows Bridge, Three Mile Island nuclear reactor, and the various Hagia Sophia roof collapses and their impact on subsequent designs. Life does not consist of failure alone, so we will also look at a few exceptional designs that have quietly exceeded expectations and saved lives in the process.

**David Westerfeld, *Electrical and Computer Engineering***

David worked as an engineer in the aerospace industry for ten years before returning to school to pursue his Ph.D. in Electrical Engineering he has had some successes (and a few failures) but nothing bad enough to make the news...

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### ITS 102.21: Managing Technology Programs

Meeting Pattern: M 10:40am-11:35am

Location: Gray College A04 (ITS College Activity Center)

A common mistake made in technology-driven organizations is to promote the finest technologists/engineers to positions where they are responsible for managing projects and other technologists. The skill set required to lead development programs to successful conclusion can be very different from those required to develop technology. This course will explore technology management - from the role of the manager to basic project management skills; from steering and understanding what the customer wants to defining the product both the company and customer need; from influencing company/customer expectations to the ethical dilemmas that plague those who are responsible for managing scope, resources, schedule, and end customer satisfaction.

#### **David Hernandez,**

David Hernandez launched his interest in multiple different aspects of engineering early, simultaneously earning a B.S. in Computer Engineering and an M.S. in Electrical Engineering. His graduate work led him to prototype work with OFDM communications - the basis for the IEEE 802.11a/g wireless standards. To complement design "know-how" with analytical expertise, he pursued a doctorate in EE, focused on signal processing and communications.

Dr. Hernandez has viewed engineering from a variety of perspectives. As a process engineer, he gained valuable insight into how design decisions affect individual product life cycles. Later, he worked on integration of full vehicular platforms, aircraft, and hovercraft, giving him exposure to increasingly complex designs from the "line engineer" perspective. As his skills evolved, he was expected to make business decisions and took on responsibility for advanced technology demonstrations to customers. He learned to balance the technologist's need to "push the envelope" with making tangible contributions to the customer's mission. His work in homeland security began as part of a working group tasked with improving FDNY equipment after Sept. 11th. This led to Dr. Hernandez being selected as integration lead for Nassau County's component of the Homeland Security Exercise & Evaluation Program. He led a team of 10 Long Island companies responsible for design, development, testing, and one-time field deployment of a survivable situational awareness and response system for first responders. Later, as the head of Space Sciences and Operations, at Northrop Grumman, he led a team working on the design of the next lunar module, as well as developing a research agenda addressing lunar settlement as part of NASA's Project Constellation.

Dr. Hernandez has launched and headed-up Research/Advanced Development organizations at multiple companies of varying size and scope. This varied experience, from individual technology contributions to managing personnel and company strategic vision, is what Dr. Hernandez enjoys bringing to the classroom.